HISTORIA MATHEMATICA **25** (1998), 98–119
ARTICLE NO. HM972190

ABSTRACTS

Edited by David E. Zitarelli

Books for abstracting and eventual review should be sent to this department. Materials should be sent to Prof. David E. Zitarelli, Department of Mathematics, Temple University, Philadelphia, PA 19122, U.S.A. (E-mail: ZIT@VM.TEMPLE.EDU)

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In order to facilitate reference and indexing, entries are given abstract numbers which appear at the end following the symbol #. A triple numbering system is used: the first number indicates the volume, the second the issue number, and the third the sequential number within that issue. For example, the abstracts for Volume 20, Number 1, are numbered: 20.1.1, 20.1.2, 20.1.3, etc.

For reviews and abstracts published in Volumes 1 through 13 there are an *author index* in Volume 13, Number 4, and a *subject index* in Volume 14, Number 1.

The initials in parentheses at the end of an entry indicate the abstractor. In this issue there are abstracts by Joe Albree (Montgomery, AL), Thomas L. Bartlow (Villanova, PA), Donald W. Bushaw (Pullman, WA), Ronald Calinger (Washington, DC), John G. Fauvel (Milton Keynes), Ivor Grattan-Guinness (Middlesex), Louise S. Grinstein (Brooklyn, NY), Jan P. Hogendijk (Utrecht), Herbert E. Kasube (Peoria, IL), Victor J. Katz (Washington, DC), Albert C. Lewis (Indianapolis, IN), Elena A. Marchisotto (Northridge, CA), Peter Ross (Santa Clara, CA), Gary S. Stoudt (Indiana, PA), and David E. Zitarelli.

The first abstract is reprinted from an earlier volume because the papers in it are abstracted separately in this volume.

Casulleras, Josep; and Samsó-Moya, Julio. *De Baghdad a Barcelona. Estudios sobre historia de las ciencias exactas en el mundo islámico. En honor del professor Juan Vernet* [*From Baghdad to Barcelona. Studies on the History of Exact Sciences in the Islamic World. In Honor of Professor Juan Vernet*], Barcelona: Anuari de Filosofía (Barcelona: Univ. de Barcelona), 1996, 2 vols., 830 pp. (VA) #24.4.27

Abdulrahman, Muhammad. Ibn al-Hā'im's zīj did have numerical tables [in Arabic, with an abstract in English], in #24.4.27, pp. 365–381. On the lost tables in the astronomical handbook of Ibn Hā'im (ca. 1200). (JPH) #25.1.1

Abeles, Francine. Infinitesimals *Are* Numbers, in #25.1.192, pp. 38–47. An account of Charles Lutwidge Dodgson's thinking on infinitesimals. (TLB) #25.1.2

Adams, Rebecca. From Analysis to General Topology via the Borel Theorem, in #25.1.192, pp. 48–62. Traces the Borel theorem and its extensions from Borel's formulation for intervals in 1894 to Aleksandrov's and Urysohn's treatment of compactness in 1924. (TLB) #25.1.3

Agwu, Nkechi. Report of the CUNY Mathematics Discussion Group Conference, *International Study*

0315-0860/98 $25.00

Group on the Relations Between History and Pedagogy of Mathematics Newsletter **41** (1997), 3–4. Report of a focus group from a two-day conference, entitled ''The History of Mathematics and Science and its Uses in Teaching: A Multicultural Approach,'' held in March 1997 in New York. (DEZ) #25.1.4

Albers, Donald J. An Interview with Tom Apostol, *College Mathematics Journal* **28** (1997), 250–270. An interview with the multitalented (researcher, author, TV producer) mathematician Tom Apostol, who reflects on his Greek origins and life at Cal Tech from 1948. (DEZ) #25.1.5

Albis González, Victor Samuel. Vicisitudes del postulado euclídean en Colombia [Vicissitudes of the Euclidean Postulate in Colombia], *Revista de la Academia colombiana de ciencias exactas, físicas y naturales* **21** (1997), 281–293. An examination of the alleged proofs of Euclid's fifth postulate published in Colombia by Indalecio Liévano and Hermógenes Wilson during the 19th century, and a discussion of contemporary observations of them. There is also an analysis of mathematical arguments published by Julio Garavito Armero on non-Euclidean geometries in the 1910s, and a discussion of their influence on the nonacceptance of these geometries in Colombia in the first half of this century. (DEZ) #25.1.6

Allen, Michael J. B. *Nuptial Arithmetic: Marsilio Ficino's Commentary on the Fatal Number in Book VIII of Plato's Republic,* Berkley/Los Angeles: Univ. of California Press, 1994, x + 291 pp., $48. A study of Marsilio Ficino's commentaries on Plato (1433–1499). See the review by James Hankins in *Isis* **87** (1996), 719–720. (DEZ) #25.1.7

Ambrosio, B. F. *See* #25.1.101.

Anglin, William S. Did Zhao Shuang Prove the Theorem of Pythagoras? in #25.1.192, pp. 1–12. The author develops textual evidence for both answers to the title question and concludes that the weight of the evidence is in favor of ''yes.'' (TLB) #25.1.8

Anglin, William S. Pythagoras and Crotone, *The Mathematical Intelligencer* **19**(1) (1997), 39–40. An account of a visit to Crotone with photographs. The only reminders of Pythagoras are a street and a correspondence school bearing his name. (TLB) #25.1.9

Annaratone, Silvia. Les premières démonstrations de la formule intégrale de Fourier, *Revue d'histoire des mathématiques* **3** (1997), 99–136. A classification of various proofs of the Fourier integral theorem from the 1810s and 1820s according to the method adopted. Included are the auxiliary factor technique of Cauchy and Poisson, the evaluation of the weight of the integral by Camille Deflers, Fourier, and Poisson, and the use of the calculus of residues by Cauchy. (DEZ) #25.1.10

Archibald, Thomas. From Attraction Theory to Existence Proofs: The Evolution of Potential-Theoretic Methods in the Study of Boundary-Value Problems, 1860–1890, *Revue d'histoire des mathématiques* **2** (1996), 67–93. A discussion of the transition of potential theory from a branch of mathematical physics to a branch of pure mathematics. The work of three mathematicians is stressed: Carl Neumann (1832–1925), Hermann Amandus Schwarz (1843–1921), and Émile Picard (1856–1941). See the review by Burnett Meyer in *Mathematical Reviews* **97d**:01015. (HEK) #25.1.11

Ascher, Marcia, and Ascher, Robert. *Mathematics of the Incas: Code of the Quipu*, New York: Dover, 1997. A reprint of the 1981 edition published by the University of Michigan Press. (RC) #25.1.12

Ascher, Robert. *See* #25.1.12.

Ashworth, William. Memory, Efficiency, and Symbolic Analysis: Charles Babbage, John Herschel, and the Industrial Mind, *Isis* **87** (1996), 629–653. An examination of the attempt by Babbage and Herschel to discipline the human mind and speed up the operations of intelligence through a philosophy of algebraic analysis. Babbage and Herschel spent a great deal of time visiting factories and viewed themselves as the philosophical equivalents of great industrialists such as James Watt, Matthew Boulton, and William Strutt. (DEZ) #25.1.13

Atzema, Eisso. *See* #25.1.197.

Babai, L. In and Out of Hungary: Paul Erdős, His Friends and Times, in *Combinatorics, Paul Erdős*

Is Eighty. Budapest: János Bolyai Mathematics Society, 1996, pp. 7–95. A loving account of the extraordinary career of Paul Erdős that is accessible to nonmathematicians. It provides some idea of the character of his creativity, as well as many personal and political events in his life, including a year-to-year account of Erdős's work and travels from 1913 to 1976. There are 35 pictures. See the review by D. J. Struik in *Mathematical Reviews* **97d**:01026. (HEK) #25.1.14

Bagheri, Mohammad. A Newly Found Letter of Al-Kāshī on Scientific Life in Samarkand, *Historia Mathematica* **24** (1997), 241–256. A translation into English, with commentary, of a letter written by the 15th-century Iranian mathematician and astronomer known in the West as Al-Kashī. The letter sheds light on the scientific circle of Ulugh Beg, the ruler of Samarkand. (DEZ) #25.1.15

Bagni, Giorgio Tomaso. Riccati's Grave in the Cathedral of Treviso (Italy), *The Mathematical Intelligencer* **19**(2) (1997), 49. Describes the burial places of the 18th-century mathematical Riccatis, father Jacapo, and sons Vincenzo, Giordano, and Francesco. There is a photograph. (TLB) #25.1.16

Bailey, D. H.; Borwein, J. M.; Borwein, P. B.; and Plouffe, S. The Quest for Pi, *The Mathematical Intelligencer* **19**(1) (1997), 50–57. Quickly reviews the efforts to calculate π prior to the 20th century and discusses algorithms used to calculate it since the advent of computers, including a new algorithm that enables the calculation of any hexadecimal digit. (TLB) #25.1.17

Baker, Anne C. Karl Theodor Wilhelm Weierstrass, *Mathematical Spectrum* **29**(2) (1997), 25–29. Brief account of the teaching career of Karl Weierstrass. (PR) #25.1.18

Baker, Gerald A. *See* #25.1.187.

Balcar, Bohuslav; and Simon, Petr. Miroslav Katětov (1918–1995), *Czechoslovak Mathematics Journal* **46**(121) (1996), 559–573. An obituary of the Czech mathematician, Miroslav Katětov, with a survey of his life and mathematics. (EAM) #25.1.19

Baltus, Christopher. Separating Roots of a Polynomial: Lagrange and His Successors, in #25.1.192, pp. 63–72. Discusses Lagrange's work in estimating differences between roots and expressing roots as continued fractions. Refers briefly to related work by Budan, Fourier, Sturm, Vincent, and Akritas. (TLB) #25.1.20

Barabashev, A. G. In Support of Methods of Interpretation in the History of Mathematics [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 204–235. A discussion of the modern interpretation of ancient mathematical sources from two extremes: absolute presentism and absolute antiquarianism. The author concludes that neither extreme is attainable; they exist only as tendencies. (DEZ) #25.1.21

Barbin, Évelyne. *See* #25.1.43.

Barca I Salom, Francesc X. Aspects of the Manuscripts of Onofre J. Novellas (1787–1849) [in Catalan], *Butlleti de la Societat catalana de matematiques* **11** (1996), 19–31. Studies the manuscripts containing the unpublished mathematical work of Onofre Jaume Novellas i Alabau, analyzing their content and exploring possible influences of other contemporary mathematicians. (EAM) #25.1.22

Barreau, Hervé. La physique du continu chez Aristote, sa réponse à Zénon, in Jean-Michel Salanskis and Hourya Sinaceur, eds., *Le labyrinthe du continu*, Paris: Springer-Verlag, 1992, pp. 3–15. Examines Aristotle's philosophy of the continuum based on his writings in Books III, V, and VI of his *Physics*. (EAM) #25.1.23

Barrow-Green, June. *Poincaré and the Three Body Problem*, Providence/London: American Mathematical Society/London Mathematical Society, 1997, xvi + 272 pp., $49. Gives the historical background of the three-body problem, early works of Poincaré and others that led to particular solutions, and an account of a memoir on the problem which earned Poincaré a prize in the 1889 competition celebrating the 60th birthday of the King of Sweden and Norway. The author also discusses the reception of Poincaré's results by the mathematical community and explores works by others which arose from them. See the review by Ll. G. Chambers in *Mathematical Reviews* **97g**:01013. (EAM) #25.1.24

Bartlow, Thomas L. Kenneth O. May and the Theory of Social Choice, in #25.1.192, pp. 73–78. Summarizes work by May in the late 1940s and early 1950s on the mathematics of elections. (TLB) #25.1.25

Bartol, Wiktor. Helena Rasiowa and Cecylia Rauszer—Two Generations of Logic, *Bulletin of the Section of Logic: University of Łódź* **25** (1996), 190–202. This issue of the journal is devoted to the work of the Polish mathematicians Helena Rasiowa (1917–1994) and Cecylia Rauszer (1942–1994) in logic, algebra, and computer science. Other papers of related interest in the journal are Andrzej W. Jankowski, "An Algebraic Approach to Logics in Research Work of Helena Rasiowa and Cecylia Rauszer," pp. 139–146; Ewa Orłowska, Proof-Theoretical Investigations of Helena Rasiowa, pp. 147–151; and Maria Semeniuk-Polkowska, "Greatness Measured by Faith, Talent, Work, and Suffering: My Memories of Helena Rasiowa," pp. 190–202. (DEZ) #25.1.26

Bashmakova, I. G.; and Smirnova, G. S. A New View of Geometric Algebra in Antiquity [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 55–65. The authors enter the controversy regarding the interpretation of geometric algebra in ancient Greek mathematics by H. G. Zeuthen and P. Tannery by proposing an alternative explanation. They supply examples from Babylon, India, China, and Greece to support their conclusion that geometry was the only language of science at the time, so there was no other way to represent mathematics than by geometric constructions. (DEZ) #25.1.27

Batchelor, George. *The Life and Legacy of G. I. Taylor*, Cambridge: Cambridge Univ. Press, 1996, xv + 285 pp., $75. A biography of the applied mathematician Sir Geoffrey Ingram ("G. I.") Taylor, a grandson of George Boole who covered a wide range in fluid and solid mechanics. See the book review by Peter Bradshaw in *Bulletin of the American Mathematical Society* **34** (1997), 313–315. The reviewer describes the book as "a dispassionate account, free of the exaggerations and euphemisms that sometimes mar people's books about their friends and heroes." (DEZ) #25.1.28

Beckers, D. J. Mathematics As a Way of Life—A Biography of the Mathematician Jacob de Gelder (1765–1848), *Nieuw Archief voor Wiskunde* **14** (1996), 275–297. The life story of the Dutch mathematical practitioner, writer, and educator Jacob de Gelder, whose life sheds light on the changing mathematical culture in the Netherlands at the beginning of the 19th century. See the review by Willard Parker in *Mathematical Reviews* **97f**:01029. (GSS) #25.1.29

Belhoste, Bruno. Autour d'un mémoire inédit: La contribution d'Hermite au développement de la théorie des fonctions elliptiques, *Revue d'histoire des mathématiques* **2** (1996), 1–66. Explores certain events in Hermite's work on elliptic functions. See the review by F. Smithies in *Mathematical Reviews* **97g**:01014. (EAM) #25.1.30

Berkove, Lawrence I. *See* #25.1.187.

Blay, Michel. Du système de l'infini au statut des nombres incommensurables dans les *Éléments de la géométrie* de Fontenelle, in Jean-Michel Salanskis and Hourya Sinaceur, eds., *Le labyrinthe du continu*, Paris: Springer-Verlag, 1992, pp. 61–75. Describes how Fontenelle formulated a system of infinities and infinitesimals in geometric terms to clarify the foundations of calculus. (EAM) #25.1.31

Blay, Michel. *See also* #25.1.205.

Bogolyubov, A. N.; Krylov, N. M.; and Bogolyubov, N. N. [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 118–127. This article illuminates the role played by Nikolai Mitrofanovich Krylov (1879–1955) and his student Nikolai Nikolarvich Bogolyubov (1909–1992) in creating the Kiev school of nonlinear mechanics. (DEZ) #25.1.32

Boi, Luciano. Die Beziehungen zwischen Raum, Kontinuum und Materie im Denken Riemanns; Die Äthervorstellung und die Einheit der Physik. Das Entstehen einer neuen Naturphilosophie, *Philosophia Naturalis* **31** (1994), 171–216. Discusses Riemann's theories of space and of intrinsic manifolds, demonstrating his application of them in mathematical physics, and their relationship to ether studies and theories of gravitation. (EAM) #25.1.33

Booth, A. D. *See* #25.1.43.

Borowczyk, Jacques. *See* #25.1.43.

Borwein, J. M. *See* #25.1.17.

Borwein, P. B. *See* #25.1.17.

Brackenridge, J. Bruce. *See* #25.1.205.

Bradshaw, Peter. *See* #25.1.28.

Breger, Herbert. Le continu chez Leibniz, in Jean-Michel Salanskis and Hourya Sinaceur, eds., *Le labyrinthe du continu*, Paris: Springer-Verlag, 1992, pp. 76–84. With detailed accounts of original passages and their historical and philosophical background, the author examines Leibniz's theory of the continuum and how it differs significantly from the Aristotelian conception. He also demonstrates that Leibniz's view of the topology of the continuum is not that of modern mathematical models (reals, hyperreals) and that discontinuous functions are impossible. (EAM) #25.1.34

Buccino, Alphonse. Institute in the History of Mathematics and Its Use in Teaching: A Report, *International Study Group on the Relations Between History and Pedagogy of Mathematics Newsletter* **41** (1997), 2–3. A description of the first three years of the IHMT program with a brief description of its impact. (DEZ) #25.1.35

Burns, Daniel M., Jr. *See* #25.1.114.

Bychkov, S. N. Geometry and the Axiomatic Method [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 195–204. The author extends a 1956 study by S. A. Yanovskaya to contend that the only science in which the axiomatic method could have been generated was geometry. He concludes that deductive geometry must precede not only the axiomatization of arithmetic but also the deductive exposition of Stoic logic. (DEZ) #25.1.36

Calinger, Ronald, ed. *Vita Mathematica: Historical Research and Integration with Teaching*, Washington, DC: Mathematical Association of America, 1996, xii + 359 pp., paperbound, $34.95. A collection of papers on the history of mathematics and its integration with the teaching of mathematics. (DEZ) #25.1.37

Calvo, Emilia. Ibn Bāṣo's Astrolabe in the Maghrib and the East, in #25.4.27, pp. 755–767. Ibn Bāṣo (ca. 1300) of Granada designed a particular astrolabe plate containing stereographic projections of horizons only. (JPH) #25.1.38

Castells, Margarita. Una tabla de posiciones medias planetarias en el Zīŷ de Ibn Waqār (Toledo, ca. 1375), in #24.4.27, pp. 445–452. The author discusses a table of mean planetary positions in the astronomical handbook of Ibn Waqār. (JPH) #25.1.39

Casulleras, Josep. El último capítulo del Kitāb al-asrār fī natā'iŷ al-afkār, in #24.4.27, pp. 613–653. The author discusses a sundial for seasonal hours, which is described in an 11th-century Arabic text and also in an 11th-century Latin text. (JPH) #25.1.40

Ceruzzi, Paul. Crossing the Divide: Architectural Issues and the Emergence of the Stored Program Computer, 1935–1955, *IEEE Annals of the History of Computing* **19**(1) (1997), 5–12. Discusses the period of the 1930s and 1940s, before modern stored-program computers evolved. Indicates how the control systems of the time bridged the gap between simple single-step mechanical desktop machines and automatic stored-program machines. (LSG) #25.1.41

Chabás, José. Astronomía andalusí en Cataluña: Las Tablas de Barcelona, in #24.4.27, pp. 477–525. Analysis of the 14th-century "Tables of Barcelona," which exist in Latin, Catalan, and Hebrew versions, and which are related to the work of Spanish Islamic astronomers such as Ibn al-Kammād. (JPH) #25.1.42

Chabert, Jean-Luc; Barbin, Évelyne; Guillemot, Michel; Michel-Pajus, Anne; Borowczyk, Jacques; Djebbar, Ahmed; and Martzloff, Jean-Claude. *Histoire d'algorithmes: Du caillou à la puce* [*History of*

Algorithms: From the Pebble to the Chip], Paris: Belin, 1994, 591 pp. Each of the 14 chapters covers one aspect of the development of algorithms, from their origins ca. 2500 BC through the solution of equations by regula falsi and the Euclidean algorithm to the Newton–Raphson method and acceleration of convergence methods. It also contains illustrations and quotations from original sources. See the review by A. D. Booth in *Mathematical Reviews* **97f**:01003. (GSS) #25.1.43

Chambers, Ll. G. *See* #25.1.24, #25.1.78, and #25.1.92.

Chandrasekhar, Subrahmanyan. *See* #25.1.205.

Charbonneau, Louis. From Euclid to Descartes: Algebra and Its Relation to Geometry, in Nadine Bednarz, Caroline Kieran, and Lesley Lee, eds., *Approaches to Algebra* (Dordrecht: Kluwer, 1996), pp. 15–37. Beginning with Mahoney's ideas on the notion of ''algebraic thinking,'' the development of this concept is traced through the related ideas of analysis, measure, and proportion. See the review by C. R. Fletcher in *Mathematical Reviews* **97h**:01002. (JA) #25.1.44

Charbonneau, Louis, and Lefebvre, Jacques. Placement and Function of Problems in Algebraic Treatises from Diophantus to Viète, in Nadine Bednarz, Caroline Kieran, and Lesley Lee, eds., *Approaches to Algebra* (Dordrecht: Kluwer, 1996), pp. 155–165. Works of Diophantus, al-Khwārizmī, Cardano, and Viète are cited as attitudes toward problems changed over time and through different cultures. See the review by C. R. Fletcher in *Mathematical Reviews* **97h**:01003. (JA) #25.1.45

Christopher, Peter R. Mathematics in Albania, *The Mathematical Intelligencer* **19**(1) (1997), 28–36. A discussion of mathematics at the University of Tirana since it was founded in 1957 and of the interactions between mathematics and politics. (TLB) #25.1.46

Cleary, John J. *Aristotle and Mathematics: Aporetic Method in Cosmology and Metaphysics*, Leiden/New York: E. J. Brill, 1995, xxxvi + 558 pp. An examination of the complex relationship among Aristotle's philosophy of mathematics, his physics and cosmology, and his dialectical method. See the review by Richard McKirahan in *Isis* **87** (1996), 715–716. (DEZ) #25.1.47

Cohen, Edward L. Gregorian Dates for the Jewish New Year, in #25.1.192, pp. 79–90. A brief history of the Hebrew calendar and a summary of algorithms for determining the Gregorian data of the Jewish New Year. (TLB) #25.1.48

Comes, Mercé. Accession and Recession Theory in al-Andalus and the North of Africa, in #24.4.27, pp. 349–364. The author discusses geometrical models in numerical computations concerning trepidation in 11th–14th-century sources. (JPH) #25.1.49

Cook, Alan. Ladies in the Scientific Revolution, *Notes and Records of the Royal Society* **51** (1997), 1–12. Notes on eight women who were part of the efflorescence of critical mathematical and scientific inquiry in the 17th and 18th centuries, who all had some connection with the Royal Society: Lady Ranelagh, Queen Christina of Sweden, Elizabeth Hevelius, Lady Masham, Catherine Barton, Queen Caroline, Emilie du Chatelet, and Nicole-Reine Lepaute. (JGF) #25.1.50

Cooke, Roger L. The Russian-American Mathematician Joseph Perott [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 95–100. Joseph Perott (1854–1924) came to America in the late 1880s and joined the faculty at Clark University. Although he soon ceased to engage in mathematical research, Perott played a significant role in familiarizing Americans with current mathematical research in Europe. (DEZ) #25.1.51

Cooke, Roger L. *See also* #25.1.111.

Copeland, B. Jack, and Proudfoot, Diane. On Alan Turing's Anticipation of Connectionism, *Synthese* **108** (1996), 361–377. An outline of Turing's connectionist project of 1948 to build a computing machine out of simple, neuron-like elements joined randomly into networks. (EAM) #25.1.52

Crépel, Pierre. *See* #25.1.145 and #25.1.176.

Császár, Á. Barna Szénássy (1913–1995), *Universitatis Debreceniensis. Institutum Mathematicum. Publicationes Mathematicae* **49** (1996), 1–5. A list of publications of the historian of mathematics Barna Szénássy. (DEZ) #25.1.53

Cullen, Christopher. *Astronomy and Mathematics in Ancient China: The Zhou bi suan jing*, Cambridge, UK: Cambridge Univ. Press, 1996. (RC) #25.1.54

Cuomo, Serafina. Shooting by the Book: Notes on Niccolò Tartaglia's *Nova Scientia, History of Science* **35**(2) (1997), 155–188. A description of Tartaglia's *Nova Scientia* of 1537 and its place in the scientific and literary tradition of the time. (TLB) #25.1.55

Daboni, Luciano. Ricordo di Giuseppe Ottaviani [Remembrance of Giuseppe Ottaviani]. *Rivista di matematica per le scienze economiche e sociali* **17**(2) (1994) 79–92. An obituary of G. Ottaviani (1914–1994) with an account of his work in probability theory and actuarial mathematics, and a list of his publications. (DEZ) #25.1.56

Daston, Lorraine. *See* #25.1.208.

Dauben, Joseph W. *See* #25.1.73.

Davis, Chandler. Remembering Olga Taussky Todd, *The Mathematical Intelligencer* **19**(1) (1997), 15–17. A brief synopsis of Taussky Todd's career with an indication of her influence regarding Gershgorin circles and inertia theorems. A photograph and a self-mocking poem are included. (TLB) #25.1.57

De Gandt, François. *See* #25.1.205.

Dekker, Elly. The Copernican Globe: A Delayed Conception, *Annals of Science* **53** (1996), 541–566. Globe production increased greatly from the 16th century, being a first step towards learning astronomy, navigation, trigonometry, etc. The implications of the change from Ptolemaic to Copernican world-views took some time to impact on globe-making. Technological as much as scientific change led to the decline of the globe in late 19th century. (JGF) #25.1.58

Dekker, Elly. *See also* #25.1.116.

Demidov, Sergei S. *Matematicheskii Sbornik* 1866–1935 [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 127–145. An examination of the oldest Russian mathematical journal, *Matematicheskii Sbornik*. Founded by the Moscow Mathematical Society in 1866, *Sbornik* was the leading Moscow mathematical journal up to the 1930s. Although *Sbornik* subsequently became the leading mathematical journal throughout all of Russia, it still reflected the point of view of Moscow. (DEZ) #25.1.59

Denkowska, Zofia, and Jankowska-Sahraoui, Emilia. Past, Present and Future of Hilbert's Sixteenth Problem [in Polish], *Wiadomości Matematyczne* **31** (1995), 31–43. Outlines the history and present status of Hilbert's 16th problem, in particular, present approaches to the problem. A rich list of references is supplied. See the review by A. Pelczar in *Mathematical Reviews* **97f**:01022. (GSS) #25.1.60

Dennis, David. René Descartes' Curve-Drawing Devices: Experiments in the Relations Between Mechanical Motion and Symbolic Language, *Mathematics Magazine* **70** (1997), 163–174. An investigation of two of the curve-drawing constructions from the *Geometry* of Descartes that highlight the coordination of geometrical and algebraic forms of representation. (DEZ) #25.1.61

Densmore, Dana. *See* #25.1.205.

Dias, Penha Maria Cardoso. William Thomson and the Heritage of Caloric, *Annals of Science* **53** (1996), 511–520. A discussion of William Thomson's three influential papers on the theory of heat published between 1849 and 1852. Thomson's papers had some difficulties and the author traces how these problems were later reconciled. See *Mathematical Reviews* **97d**:01016. (HEK) #25.1.62

Djebbar, Ahmed. *See* #25.1.43.

Dold-Samplonius, Yvonne. *See* #25.1.181.

Donahue, William H. Kepler's Approach to the Oval of 1602, from the Mars Notebook, *Journal of the History of Astronomy* **27** (1996), 281–295. This article traces the evolution of Johann Kepler's oval hypothesis from the interplay between the mathematical arguments and his physical and philosophical theorizing. (DEZ) #25.1.63

Drago, Antonio. Mach's Thesis: Thermodynamics as the Basic Theory for Physics Teaching, *Science & Education* **3** (1994), 189–198. Some teachers are proposing teaching physics starting from thermodynamics rather than from mechanics, a proposal that was included in Mach's thesis. The conflict between the two is discussed. See the summary in *Mathematical Reviews* **97f**:01015. (GSS) #25.1.64

Dugowson, Stéphane. L'élaboration par Riemann d'une définition de la derivation d'ordre non entier, *Revue d'histoire des mathématiques* **3** (1997), 49–97. An examination of the content and reception of Riemann's early memoir *Versuch einer allgemeinen Auffasung der Integration und Differentiation*, in which he propounded his concept of a fractional calculus. An Appendix (pp. 81–97) translates the work from German to French. (DEZ) #25.1.65

Emmer, Michele. Interview with Ennio De Giorgi, *Notices of the American Mathematical Society* **44** (1997), 1097–1101. An interview with the Italian mathematician E. De Giorgi, who muses about the nature of mathematics and science, and about creativity and the imagination. See also #25.1.124. (DEZ) #25.1.66

Erickson, Glenn W., and Fossa, John A. *A pirâmide platônica* [in Portuguese], Joao Pessoa: Editoria Universitaria, 1996, 92 pp. Interesting speculations on Pythagorean triples in Plato, and connection to the Nuptial and the tyranny numbers in Plato's *Republic*. More speculative material about 666 is included. (IGG) #25.1.67

Ermolaeva, N. S. Yakov Davidovich Tamarkin: Materials for a Biography [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 100–108. An examination of the life and work of J. D. Tamarkin (1888–1945), the St. Petersburg mathematician who emigrated to the United States in 1925, taught at Brown University, and played an active role in the American Mathematical Society. (DEZ) #25.1.68

Evans, James. Fraud and Illusion in the Anti-Newtonian Rear Guard: The Coultaud–Mercier Affair and Bertier's Experiments, 1767–1777, *Isis* **87** (1996), 74–107. Explores the controversy arising from a series of pendulum experiments which appeared to refute Newton's inverse square law of attraction. The author provides detailed arguments of the anti-Newtonians, discusses how the experiments were revealed to be bogus, and suggests that Cardinal Hyacinthe-Sigismond Gerdil perpetrated the fraud. See the review by C. J. Scriba in *Mathematical Reviews* **97g**:01012. (EAM) #25.1.69

Fauvel, John. Report on HPM Course in Iceland, June 1997, *International Study Group on the Relations Between History and Pedagogy of Mathematics Newsletter* **41** (1997), 7. Report of a three-day course on the history of mathematics for Icelandic mathematics teachers given by Évelyne Barbin, John Fauvel, and René Guitart. (DEZ) #25.1.70

Field, J. V. Piero della Francesca as Practical Mathematician: The Painter as Teacher, in Marisa Dalai Emiliani and Valter Curzi, eds., *Piero della Francesca tra arte e scienza* (Venice: Marsilio 1996), pp. 331–354. Deals in detail with Piero's proof of the correctness of his perspective construction, in the first book of his perspective treatise. (JGF) #25.1.71

Folkerts, Menso. Piero della Francesca and Euclid, in Marisa Dalai Emiliani and Valter Curzi, eds., *Piero della Francesca tra arte e scienza* (Venice: Marsilio 1996), 293–312. In both his *Trattato d'abaco* and his *Libellus de quinque corporibus regularibus*, Piero made extensive and creative use of Campanus's version of Euclid's *Elements*. His rediscovery of six of the Archimedean polyhedra may be indebted not only to Euclid but also to mediaeval sources, some of them now lost. (JGF) #25.1.72

Føllesdal, Dagfinn. Husserl and Frege: A Contribution to Elucidating the Origins of Phenomenological Philosophy, in Leila Haaparanta, ed., *Mind, Meaning, and Mathematics*, Dordrecht: Kluwer, 1994, pp. 3–47. Explores Frege's influence on Husserl's philosophy of mathematics. See the review by Joseph W. Dauben in *Mathematical Reviews* **97g**:01021. (EAM) #25.1.73

Fontenelle, Bernard Le Bovier. *Éléments de la géométrie de l'infini*, Paris: Éditions Klincksieck, 1995, 623 pp., paperbound, Fr 320. Published in 1727, this work aims to develop a rigorous and philosophically respectable theory of the infinite, just as Euclid's *Elements* was the canonical presentation of classical geometry. See the review by Douglas M. Jesseph in *Isis* **87** (1996), 549–550. (DEZ) #25.1.74

Forcada, Miquel. A New Andalusian Historical Source from the Fourth/Tenth Century: The *Mukhtaṣar min al-anwā*^{c} of Aḥmad ibn Fāris, in #24.4.27, pp. 769–780. The author shows that an Arabic text, entitled "summary on weather prognostications," was written around 982 by Aḥmad ibn Fāris, the court astrologer of caliph Al-Ḥakam II in Cordoba. (JPH) #25.1.75

Ford, Charles E. Dmitrii Fedorovich Egorov: Materials in the Archives of Moscow University [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 146–165. A discussion of five letters written by D. F. Egorov (1869–1931) in 1929–1930 when he was under attack by radical students. The first urges the Institute of Mathematics and Mechanics to reverse the decision to deny admission to G. A. Seliverstov (1905–1944). The second supports Kolmogorov's appointment to the Institute even though he had not yet completed his studies. The last three are letters of recommendation for three students. (DEZ) #25.1.76

Fossa, John A. *See* #25.1.67.

Francis, Richard L. *See* #25.1.154.

Fraser, Craig G. *Calculus and Analytical Mechanics in the Age of Enlightenment*, Brookfield, VT: Variorum, 1997, 336 pp., Hardbound, $94.95. This book examines the contributions of Euler, Lagrange, and d'Alembert to analysis and analytical mechanics. (DEZ) #25.1.77

Fraser, Craig G. *See also* #25.1.159.

Garber, Elizabeth. Reading Mathematics, Constructing Physics: Fourier and His Readers, 1822–1850, in A. J. Kox and Daniel M. Siegel, eds., *No Truth Except in the Details*, Dordrecht: Kluwer, 1995, pp. 31–54. A discussion of the historical development of mathematical physics in the second quarter of the 19th century, with particular reference to Fourier. The suggestion is that the philosophy was mathematical rather than physical; the physical viewpoint appeared only later in the century. See the review by Ll. G. Chambers in *Mathematical Reviews* **97f**:01016. (GSS) #25.1.78

Genensky, Sam. *See* #25.1.82.

Giloi, Wolfgang K. Konrad Zuse's Plankalkül: The First High-Level, "Non-von Neumann" Programming Language, *IEEE Annals of the History of Computing* **19**(2) (1997), 17–24. A description of the algorithmic programming language Plankalkül (plan calculus). The language featured binary data structure types, supporting a loop-free programming style for logical or relational problems. (LSG) #25.1.79

Göbel, Rüdiger. László Fuchs—A Personal Evaluation of His Contributions to Mathematics, *Periodica mathematica hungarica* **32** (1996), 13–29. A mathematical biography of László Fuchs that emphasizes his last 20 years. See the review by Manfred Gugas in *Mathematical Reviews* **97d**:01028. (HEK) #25.1.80

Goldstein, Bernard R. Lunar Velocity in the Middle Ages: A Comparative Study, in #24.4.27, pp. 181–194. The author discusses the computation of hourly lunar motions in Arabic, Hebrew, and Latin texts between 800 and 1400. (JPH) #25.1.81

Gordon, Lou, and Genensky, Sam. A conversation with Ted Harris, *Statistical Science* **11** (1996), 150–158. An interview with the statistician Ted Harris, who worked at the Rand Corporation and the University of Southern California. (DEZ) #25.1.82

Gould, Paula. Women and the Culture of University Physics in Late Nineteenth-Century Cambridge, *British Journal for the History of Science* **30** (1997), 127–149. The Cavendish Laboratory, open to women from 1882, provided a space where historiographic notions of spheres and boundaries overlap. The

culture of Cambridge physics can be reconstructed from a gendered perspective, by highlighting ideas of partnership, collaboration, and the roles adopted by women students. (JGF) #25.1.83

Grabiner, Judith. Was Newton's Calculus a Dead End? The Continental Influence of Maclaurin's *Treatise on Fluxions, American Mathematical Monthly* **104** (1997), 393–410. Contrary to received opinion, Maclaurin's *Treatise on Fluxions* did develop important ideas and techniques and was widely influential; in particular, it served to transmit Newtonian ideas, improved and expanded, to the Continent. See also #19.3.38. (JGF) #25.1.84

Granger, Gilles Gasto. Jean Cavaillès et l'histoire, *Revue d'histoire des sciences* **49** (1996), 569–582. Was Jean Cavaillès an historian of mathematics? He tried to describe advances in mathematical knowledge at the level of the actual productions and transformations of the contents. He sought to characterize and explain mathematical progress as depending upon a necessity both internal and rational, but not predictable. (JGF) #25.1.85

Grant, Hardy. Some Thoughts on the History of Beauty in Mathematics, in #25.1.192, pp. 91–99. Contrasts a classical Greek objective definition of beauty with an 18th-century subjective understanding and discusses the applicability of each to mathematics. (TLB) #25.1.86

Grattan-Guinness, Ivor. *See* #25.1.91.

Gray, Jeremy. Algebraic Geometry Between Noether and Noether—A Forgotten Chapter in the History of Algebraic Geometry, *Revue d'histoire des mathématiques* **3** (1997), 1–48. A steady flow of papers from König, Kürschák, Molk, Hadamard, Lasker, and Macaulay responded to the (very different) work of Hilbert and Kronecker which founded the modern period in algebraic geometry. These papers link to a growing sophistication in understanding rings, fields, and related concepts, and shed light on the balance between algebra and geometry in the period leading up to Emmy Noether. (JGF) #25.1.87

Gray, Jeremy. König, Hadamard and Kürschák, and Abstract Algebra, *The Mathematical Intelligencer* **19**(2) (1997), 61–64. Discusses the roles of Gyula König, József Kürschák, and Jacques Hadamard in advancing and interpreting Kronecker's work in elimination theory. (TLB) #25.1.88

Gray, Jeremy. *See also* #25.1.111.

Gugas, Manfred. *See* #25.1.80.

Guillemot, Michel. *See* #25.1.43.

Gupta, R. C. Who Invented the Zero? *Gaṇita-Bhāratī* **17** (1995), 45–61. The genesis of the zero concept, particularly in relation to a place-value system, has always been a matter of contention. Gupta surveys various sources that indicate the presence or absence of a zero symbol in many ancient civilizations. See the review by Victor J. Katz in *Mathematical Reviews* **97d**:01046. (HEK) #25.1.89

Hall, A. Rupert. *Isaac Newton: Adventurer in Thought*, Cambridge, UK: Cambridge Univ. Press, 1996. (RC) #25.1.90

Hankins, James. *See* #25.1.7.

Harman, Peter M. Looking Through the Looking-Glass, and What Maxwell Found There, in A. J. Kox and Daniel M. Siegel, eds., *No Truth Except in the Details*, Dordrecht: Kluwer, 1995, pp. 79–93. The author charts some aspects of optics, especially when conceived as part of Maxwell's electromagnetic theory. See the review by Ivor Grattan-Guinness in *Mathematical Reviews* **97f**:01017. (GSS) #25.1.91

Harman, Peter M. *See also* #25.1.115 and #25.1.126.

Hayashi, Takao. *See* #25.1.130.

Hecht, Hartmut. Principle of Least Action: Methodological Inversion of Dynamics, in Heinz Lübbig, ed., *The Inverse Problem*, Weinheim: VCH Verlagsgesellschaft, 1995, pp. 181–208. Discusses the ideas

of Maupertuis on the principle of least action, treats the conceptual ideas of dynamics formulated by Leibniz, compares the philosophical standpoints of Newton and Leibniz, synthesizes the two standpoints by Maupertuis, and discusses the philosophical consequences of the action principle and of the introduction of the idea of causality by Helmholtz. See the review by Ll. G. Chambers in *Mathematical Reviews* **97f**:01014. (GSS) #25.1.92

Henriksen, Melvin. Reminiscences of Paul Erdős (1913–1996), *Humanistic Mathematics Network Journal* **15** (1997), 13–16. Contains delightful anecdotes and a brief biography of Erdős as well as information on the Erdős Number Project home page on the World Wide Web. The article itself also appears on the MAA website at http://208.maa.org/features/erdos.html. (PR) #25.1.93

Hill, Katherine. Neither Ancient Nor Modern: Wallis and Barrow on the Composition of Continua. I. Mathematical Styles and the Composition of Continua, *Notes and Records of the Royal Society of London* **50** (1996), 165–178. Attempts to demonstrate that the ideas and mathematical results of Wallis and Barrow cannot be categorized as either exclusively traditional or modern, but rather fit into both categories. (EAM) #25.1.94

Hilton, Peter, and James, Ioan. The Whitehead Heritage, *The Mathematical Intelligencer* **19** (1) (1997), 58–63. A description by two of Whitehead's students of his contributions to topology. (TLB) #25.1.95

Hlawka, Edmund. Renewal of the Doctorate of Olga Taussky Todd, *The Mathematical Intelligencer* **19** (1) (1997), 18–20. Abridged text of a speech made in 1980 celebrating the 50th anniversary of Taussky Todd's doctorate. Photograph. (TLB) #25.1.96

Hogendijk, Jan P. Al-Mu'taman's Simplified Lemmas for Solving ''Alhazen's Problem,'' in #24.4.27, pp. 59–101. Edition and English translation of Propositions 511.2–511.7 of the *Istikmāl* of al-Mu'taman (died 1085). The author comments on the relation between the ''problem of Alhazen'' and the rest of the *Optics* of Ibn al-Haytham (died ca. 1041). (JPH) #25.1.97

Hogendijk, Jan. Mathematics in Medieval Islamic Spain, in S. D. Chatterji, ed., *Proceedings of the International Congress of Mathematicians* (Basel: Birkhäuser, 1995), pp. 1568–1580. An overview of the work of Islamic mathematicians in Córdova, Zaragoza, and Toledo from the 7th to the 11th century to counter the view that their only role was transmission of knowledge from Arabic to Latin. (DEZ) #25.1.98

Høyrup, Jens. *See* #25.1.104.

Hughes, Barnabas. Early Voyages into Logarithmic Seas, in #25.1.192, pp. 100–107. Describes methods of calculating logarithms by Brooke Taylor and John Long. (TLB) #25.1.99

Huskey, Harry D. SWAC—Standards West Automatic Computer: The Pioneer Day Session at NCC July 1978, *IEEE Annals of the History of Computing* **19** (2) (1997), 51–61. An edited transcript (never published before) of a panel session which included talks by people who built and used SWAC. (LSG) #25.1.100

Huskey, Harry D.; Thorensen, R.; Ambrosio, B. F.; and Yowell, E. C. The SWAC Design Features and Operating Experience, *IEEE Annals of the History of Computing* **19** (2) (1997), 46–50. A reprint of a paper originally published in 1953. It provides a description of the functional organization of the SWAC computer together with a brief discussion of various commands. (LSG) #25.1.101

James, Ioan. *See* #25.1.95.

Jami, Catherine. *See* #25.1.203.

Jankowska-Sahraoui, Emilia. *See* #25.1.60.

Jankowski, Andrzej W. *See* #25.1.26.

Jesseph, Douglas M. *See* #25.1.74.

Jha, K. *See* #25.1.130.

Kailath, Thomas. Norbert Wiener and the Development of Mathematical Engineering, *Current Science* **71** (1996), 261–274. Chronologically details the development of mathematical engineering, giving emphasis to problems addressed by N. Wiener. The author does not, however, discuss contemporary problems of mathematical engineering. (EAM) #25.1.102

Katz, Kaila. Historical Content in Computer Science Texts: A Concern, *IEEE Annals of the History of Computing* **19** (1) (1997), 16–19. A survey of well-used texts containing problematic historical material. There is a need for accurate, apt, and adequate presentation in this area. (LSG) #25.1.103

Katz, Victor J. *See* #25.1.89.

Keller, Olivier. *Préhistoire de la géométrie: Premiers éléments d'enquête, premières conclusions*, Nantes: Univ. de Nantes, 1995, 98 + 18 pp., paperbound. This book discusses various examples of geometry embedded in ''primitive wisdom.'' See the review by Jens Høyrup in *Isis* **87** (1996), 713–714. (DEZ) #25.1.104

Kennedy, Edward S. The Astrological Houses as Defined by Medieval Islamic Astronomy, in #24.4.27, pp. 535–578. The author discusses nine systems for the mathematical definition of the astrological houses, and the computation of these houses as described in 28 Arabic and Persian astronomical works. (JPH) #25.1.105

Khabelashvili, A. V. The Problem of Apollonius of Perga [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 66–81. The author suggests a method for solving the problem of Apollonius using geometric methods that were known at that time. (DEZ) #25.1.106

King, David A., and Maier, Kurt. The Medieval Catalan Astrolabe of the Society of Antiquaries, London, in #24.4.27, pp. 673–718. Description of an astrolabe made in Catalonia in the Middle Ages that is owned by the Society of Antiquaries in London. Commentaries on various parts of the astrolabe by the authors, separately, are provided. (JPH) #25.1.107

Kistermann, Friedrich, W. Locating the Victims: The Nonrole of Punched Card Technology and Census Work, *IEEE Annals of the History of Computing* **19** (2) (1997), 31–45. Describes the punched card technology used in both census and commercial applications. Gives a detailed description of census requirements, particularly the German censuses of 1925, 1933, and 1939. The author attempts to counter arguments that German authorities used these census results during the Holocaust period. (LSG) #25.1.108

Kleiner, Israel. A Historically Focused Course in Abstract Algebra, in #25.1.192, pp. 108–115. A course description based on five classical problems. (TLB) #25.1.109

Kleiner, Israel, and Movshovitz-Hadar, Nitsa. Proof: A Many-splendored Thing, *The Mathematical Intelligencer* **19**(3) (1997), 16–26. An historical perspective on the concept of proof, standards of rigor, and their role in the development of mathematics. (TLB) #25.1.110

Knobloch, Eberhard. *See* #25.1.186 and #25.1.197.

Kolmogorov, A. N., and Yushkevich, A. P. *Mathematics of the 19th Century: Geometry, Analytic Function Theory*, trans. Roger Cooke, Basel/Boston/Berlin: Birkhäuser, 1996, x + 290 pp., sFr 98. See the review by Jeremy Gray in *Historia Mathematica* **24** (1997), 332–334. The reviewer describes the translation of the 1980 Russian work as ''two books, one on geometry by B. L. Laptev and B. A. Rozenfeld and one on analytic function theory by A. I. Markushevich.'' (DEZ) #25.1.111

Krämer, Sybille. Zur Begründung des Infinitesimalkalküls durch Leibniz, *Philosophia Mathematica* **28** (1991), 117–146. Discusses the role of Leibniz's law of continuity in the establishment of his differential calculus. (EAM) #25.1.112

Kreyszig, Erwin. Leonhard Euler as an Applied Mathematician and Engineer, in #25.1.192, pp. 116–120. Describes Euler's papers on ships and on turbines. (TLB) #25.1.113

Kuhn, Harold W. A Celebration of John F. Nash, *Duke Mathematical Journal* **81** (1995), i–iv. Examines the relationship between the brief note *Les Prix Nobel 1994* and the Nobel Prize awarded to Nash. There is a review of much of Nash's work except for his contributions to game theory. See the review by Daniel M. Burns, Jr., in *Mathematical Reviews* **97g**:010128. (EAM) #25.1.114

Kuiken, N. K. H. A. Lorentz: Sketches of His Work on Slow Viscous Flow and Some Other Areas in Fluid Mechanics and the Background against Which It Arose, *Journal of Engineering Mathematics* **30** (1996), 1–18. This is the introduction to a special issue of the journal celebrating the centenary of the publication of a seminal 1896 paper on fluid mechanics by the physicist H. A. Lorentz (1853–1928). See the review by Peter M. Harman in *Mathematical Reviews* **97d**:01018. (HEK) #25.1.115

Kunitzsch, Paul, and Dekker, Elly. The Stars on the Rete of the So-called "Carolingian Astrolabe," in #24.4.27, pp. 655–672. On a Catalan astrolabe from the late 10th century. (JPH) #25.1.116

Kushner, Boris A. Uspensky Writes about Kolmogorov [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 165–191. An article by V. A. Uspensky on the role of A. N. Kolmogorov in mathematical logic inspires the author to recall various Russian mathematics he met, including Alexandrov, Arnold, Gelfand, Gnedenko, Kolmogorov, Lyusternik, Manin, Menshov, and Yanovskaya. (DEZ) #25.1.117

Lang, Serge. Mordell's Review, Siegel's Letter to Mordell, Diophantine Geometry, and 20th-Century Mathematics [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 235–256. A translation of a paper that appeared in the *Notices of the American Mathematical Society.* See #22.3.49. (DEZ) #25.1.118

Laugwitz, Detlef. On the Historical Development of Infinitesimal Mathematics. I. The Algorithmic Thinking of Leibniz and Euler, *American Mathematical Monthly* **104** (1997), 447–455. The Achilles heel of Leibniz's calculus was the equality $x + dx = x$, which was justified by him in various ways, although he gave no systematic account. (JGF) #25.1.119

Laugwitz, Detlef. On the Historical Development of Infinitesimal Mathematics. II. The Conceptual Thinking of Cauchy, *American Mathematical Monthly* **104** (1997), 654–663. The second part of the paper above, emphasizing various contributions made by Cauchy. (DEZ) #25.1.120

Laugwitz, Detlef. *See also* #25.1.125.

Lefebvre, Jacques. *See* #24.4.45.

Lehoux, Daryn. The Locus Theorem in Pappus and Proclus, in #25.1.192, pp. 13–25. A comparison of the classification of loci by Pappus, Eutocius, and Proclus, pointing out the inferiority of Eutocius's and Pappus's treatments and inferring that material on loci was lost between the time of Pappus and the time of Eutocius and Proclus. (TLB) #25.1.121

Lévy, Tony. L'histoire des nombres amiables: Le témoignage des textes hébreux médiévaux, *Arabic Sciences and Philosophy: A Historical Journal* **6** (1996), 3–4, 6, 63–87. This is "a survey of all available information, most of which is absolutely new, on the Hebrew channel for the transmission" of the Rule of Thabit ibn Qurra for generating pairs of amicable numbers. See the review by Julio Samso-Moya in *Mathematical Reviews* **97h**:01008. (JA) #25.1.122

Lewis, Albert C. Hermann Grassmann and the Algebraization of Arithmetic, in Peter Schreiber, ed., *Werk und Wirkung*, Greifswald: Ernst-Moritz-Arndt-Universität, 1995, pp. 47–58. Provides an analysis of Propositions 7 to 75 of Grassmann's *Lehrbuch der Arithmetik* (1860). The author discusses the impact of this book on mathematicians and philosophers, such as Guiseppe Peano, Ernst Schröder, and Bertrand Russell, and attempts to demonstrate why Grassmann's work was an important contribution to the algebraization of arithmetic. (EAM) #25.1.123

Lions, Jacques-Louis, and Murat François. Ennio De Giorgi (1928–1996), *Notices of the American Mathematical Society* **44** (1997), 1095–1096. A tribute to the Italian mathematician E. De Giorgi that

discusses his contributions to minimal surfaces and geometric measure theory, partial differential equations, and logic. See also #25.1.66. (DEZ) #25.1.124

Lorch, Richard. Maslama al-Majrīṭī and Thābit's al-Shakl al-Qaṭṭāᶜ, in #24.4.27, pp. 49–57. The author discusses notes by the 10th-century Islamic Spanish mathematician al-Majrīṭī on a treatise by Thābit ibn Qurra (9th century) on Menelaus's spherical transversal theorem and on Ptolemy's treatise on stereographic projection. (JPH) #25.1.125

Lorentz, H. A. A General Theorem on the Motion of a Fluid with Friction and a Few Results Derived from It, *Journal of Engineering Mathematics* **30** (1996), 19–24. A translation from the 1896 Dutch Original by H. K. Kuiken of a paper by the physicist H. A. Lorentz on a topic remote from his main work on electron theory. This short paper contains important ideas—the Lorentz reciprocal theorem, integral equation, and reflection theorem. See the review by Peter M. Harman in *Mathematical Reviews* **97d**:01019. (HEK) #25.1.126

Lumiste, Ülo. Differential Geometry in Estonia: History and Recent Developments *Arkhimedes* **4** (1996), 31–34 [in Finnish]. A general discussion of the mathematics taught in Tartu (formerly Dorpat) since the founding of a university in 1632, including the work of four 19th-century mathematicians (Martin Bartels, Carl Eduard Senff, Ferdinand Minding, and Karl Peterson). Work done since 1950 is mentioned in a final section. See the reviews by J. S. Joel in *Mathematical Reviews* **97h**:01021. (JA) #25.1.127

Luther, I. O. On the History of the Problem of Apollonius of Constructing a Circle Tangent to Three Given Circles *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 82–94. [in Russian]. A discussion of the planar solution of the problem of Apollonius by the 10th-century Arabic scholar Ibrahim ibn Sinan, thus supplying the first and so far the only example of interest in this problem in the medieval Arabic East. Common points with the solution by Viète are also given. (DEZ) #25.1.128

Luther, I. O. *See also* #25.1.167.

Mackenzie, Dana. Fred Almgren (1933–1997), *Notices of the American Mathematical Society* **44** (1997), 1102–1106. A tribute to the Princeton mathematician, Fred Almgren, by his 10th doctoral student. Almgren married his first doctoral student, the Rutgers mathematician, Jean Taylor. (DEZ) #25.1.129

Madhukar Mallayya, V., and Jha, K. Bhaskara's Concept of Numeration in Decuple Proportions—Earliest Reference in Vedas with Yaska's Nirukta Throwing Light on the Notion of Succession in Enumeration: An Anticipation of Peano's Axioms, *Gaṇita-Bhāratī* **17** (1995), 85–91. The authors argue that the Hindus "anticipated Peano by more than a couple of thousand years." See the review by Takao Hayashi, *Mathematical Reviews* **96d**:01009. (HEK) #25.1.130

Maier, Kurt. *See* #25.1.107.

Majer, U. Hilbert's Criticism of Poincaré's Conventionalism, in Jean-Louis Greffe, Gerhard Heinzmann, and Kuno Lorentz (eds.), *Henri Poincaré: Science et Philosophie*, Berlin: Akademie Verlag, 1996, pp. 355–364. This paper sheds light on Poincaré's and Hilbert's conflicting views regarding the question "What is geometry?" See the review by Hourya Sinaceur in *Mathematical Reviews* **97f**:01024. (GSS) #25.1.131

Malet, Antoni. Isaac Barrow on the Mathematization of Nature: Theological Voluntarism and the Rise of Geometrical Optics, *Journal of the History of Ideas* **58** (1997), 265–287. The roots of Newton's mathematization of nature, as seen in *Principia* (1687), are to be found in Isaac Barrows' philosophy of the mathematical sciences. (JGF) #25.1.132

Martzloff, Jean-Claude. *See* #25.1.43.

Massa, Ma. Rosa. Mengoli on "Quasi Proportions," *Historia Mathematica* **24** (1997), 257–280. An analysis of a 1659 work by Pietro Mengoli that develops a highly innovative numerical theory for

calculating quadratures based on concepts related to quasi proportions from Book V of Euclid's *Elements*. The content and exposition reveal the originality of Mengoli's work. (DEZ) #25.1.133

McKirahan, Richard. *See* #25.1.47.

Mercier, Raymond. Accession and Recession: Reconstruction of the Parameters, in #24.4.27, pp. 299–347. This paper is about the Islamic and Hebrew sources on trepidation (variations in the motion of the ecliptic with respect to the celestial equator). The author argues by means of a mathematical analysis that the anonymous treatise *Motu octavae sphere*, which has been attributed to Thābit (9th c.), was in fact written by Ibn al-Zarqālluh (ca. 1075). (JPH) #25.1.134

Meskens, Ad. Michiel Coignet's Contribution to the Development of the Sector, *Annals of Science* **54** (1997), 143–160. The Antwerp mathematician, Michiel Coignet (1549–1623), invented a rule, the *reigle platte*, which he used in conjunction with Mordente's reduction compass, in effect performing the same operations as a sector. Later he transferred the scales to the legs of the compass, thereby making his first sector, resembling the reduction compass. (JGF) #25.1.135

Mestres, Àngel. Maghribī Astronomy in the 13th Century: A Description of Manuscript Hyderabad Andra Pradesh State Library 298, in #24.4.27, pp. 383–443. This paper contains a table of contents and an analysis of an anonymous 13th-century Tunisian astronomical handbook which was recently discovered in a manuscript in India. (JPH) #25.1.136

Methuen, Charlotte. The Role of the Heavens in the Thought of Philip Melanchthon, *Journal of the History of Ideas* **57** (1996), 385–403. From the early 1530s, Melanchthon—one of the central figures in the German Lutheran Reformation—was an enthusiastic promoter of the mathematical sciences. He regarded astronomy as their pinnacle, and a cornerstone of ethical authority. Though rooted in an Aristotelian cosmology, his influence helped ensure that astronomy continued to be taught. (JGF) #25.1.137

Meyer, Burnett. *See* #25.1.11.

Michel-Pajus, Anne. *See* #25.1.43.

Mielgo, H. A Method of Analysis for Mean Motion Astronomical Tables, in #24.4.27, pp. 159–179. The author describes a method for reconstructing (approximations of) the parameters p and q from a table of finitely many rounded values $p + qt$ for known t. He applies his method to the trepidation tables of Ibn al-Zarqālluh (ca. 1075). (JPH) #25.1.138

Mishra, V., and Singh, S. L. Theorem of Square on the Diagonal in Vedic Geometry and Its Application, *Indian Journal of History of Science* **31** (1996), 157–166. Previous studies of the Pythagorean Theorem in early India are summarized. The theorem is expressed in the Sanskrit of the ancient sulbasūtras and in English translation. Pythagorean triples from this time are also discussed. See the review by Takao Hayashi in *Mathematical Reviews* **97h**:01006. (JA) #25.1.139

Mizzi, Eddie. *See* #25.1.180.

Molland, A. G. *See* #25.1.165 and #25.1.201.

Monastyrsky, Michael. *Modern Mathematics in the Light of the Fields Medals*, Wellesley, MA: A. K. Peters, 1997, xvi + 160 pp. A translation from the 1991 Russian original version by Roger Cooke that has been revised by the author and has added an autobiography by J. L. Synge, friend of J. C. Fields. Fields and the medal are briefly described but the main theme is the mathematics that the medal recognized and what grew out of that mathematics. The 1990 and 1994 medalists are covered by two appendixes. There are a foreword by Freeman Dyson and an eight-page bibliography. (ACL) #25.1.140

Monk, Ray. *Bertrand Russell: The Spirit of Solitude, 1872–1921*, New York: Free Press, 1996. First volume of a projected two-volume biography of Russell which seeks to integrate his personal and intellectual life. (RC) #25.1.141

Moore, Gregory H. Felix Hausdorff and the Emergence of Order, 1900–1908, in #25.1.192, pp. 121–135. Discusses the growth of set theory from Cantor's work on cardinality in the 1870s to Hausdorff's papers on order types in the first decade of the twentieth century. (TLB) #25.1.142

Movshovitz-Hadar, Nitsa. *See* #25.1.110.

Murat, François. *See* #25.1.124.

North, John D. A reply to Prof. E. S. Kennedy, in #24.4.27, pp. 579–582. Remarks on the paper #25.1.105. (JPH) #25.1.143

North, John D. Just Whose Were the Alfonsine Tables? in #24.4.27, pp. 453–475. The author studies the transmission (and rewriting) of the Alfonsine (astronomical) tables between 13th-century Spain and 14th-century Paris. (JPH) #25.1.144

Nový, Luboš. Les mathématiciens sous l'absolutisme autrichien: Bernard Bolzano et Franz Xaver Moth, *Bollettino di storia delle scienze matematiche* **15** (1995), 49–59. See the review by Pierre Crépel in *Mathematical Reviews* **97d**:01030. (HEK) #25.1.145

Orłowska, Ewa. *See* #25.1.26.

Pach, János. Two Places at Once: A Remembrance of Paul Erdős, *The Mathematical Intelligencer* **19**(2) (1997), 38–48. A friend's recollections of the personality and working style of Paul Erdős. (TLB) #25.1.146

Parker, Willard. *See* #25.1.29.

Pelczar, A. *See* #25.1.60.

Perminov, V. Ya. The Philosophical and Methodological Thought of N. I. Lobachevsky, *Philosophia Mathematica* **5** (1997), 3–20. The author connects Lobachevsky's philosophical ideas with his scientific work. (DEZ) #25.1.147

Peterson, Mark A. The Geometry of Piero della Francesca, *The Mathematical Intelligencer* **19**(3) (1997), 33–40. Examines mathematical writings of the 15th-century artist and mathematician and concludes that the influence of Luca Pacioli has deprived Piero della Francesca of proper recognition for his mathematical research. (TLB) #25.1.148

Pingree, David. Indian Astronomy in Medieval Spain, in #24.4.27, pp. 39–48. The paper concerns the transmission of Indian mathematical astronomy through pre-Islamic Iran and the Eastern Islamic world to Islamic Spain between the 9th and 11th centuries. (JPH) #25.1.149

Plouffe, S. *See* #25.1.17.

Polachek, Harry. Before the ENIAC, *IEEE Annals of the History of Computing* **19**(2) (1997), 25–30. During World II the United States Ballistic Research Laboratory had to prepare firing tables for new weapons under development. To relieve the computational bottleneck, John W. Mauchly and J. Presper Eckert proposed the construction of ENIAC. This paper describes the nature of the required computations. (LSG) #25.1.150

Proudfoot, Diane. *See* #25.1.52.

Puig, Roser. On the Eastern Sources of Ibn al-Zarqālluh's Orthographic Projection, in #24.4.27, pp. 737–753. The author compares the orthographic projections of the sphere in three works of Al-Bīrūnī (973–1048) with the modified orthographic projection on the back of the astrolabe of the Islamic Spanish astronomer Ibn al-Zarqālluh (ca. 1075). (JPH) #25.1.151

Pulte, Helmut. After 150 Years: News from Jacobi about Lagrange's Analytical Mechanics, *The Mathematical Intelligencer* **19**(3) (1997), 48–54. An examination of Jacobi's lectures on Lagrange's *Mécanique analytique* reveals Jacobi's belief that any mathematical treatment of nature must be built on principles adopted by convention, with neither a logical nor an empirical basis. (TLB) #25.1.152

Radford, Luis. On Psychology, Historical Epistemology, and the Teaching of Mathematics: Towards a Socio-Cultural History of Mathematics, *For the Learning of Mathematics* **17** (1997), 26–33. An essay suggesting that teachers need to analyze both the history and their own teaching conditions to determine how history might best be used in the classroom. (VJK) #25.1.153

Radford, Luis. The Roles of Geometry and Arithmetic in the Development of Algebra: Historical Remarks from a Didactic Perspective, in Nadine Bednarz, Carolyn Kieran, and Lesley Lee (eds.), *Approaches to Algebra*, Dordrecht: Kluwer, 1996, pp. 39–53. Explores the historical connections between arithmetic and geometry in the emergence of algebra, noting the implications of the historical content of algebra on its present-day teaching. See the review by Richard L. Francis in *Mathematical Reviews* **97g**:01002. (EAM) #25.1.154

Ragep, Jamil. Al-Battānī, Cosmology and the History of Trepidation in Islam, in #24.4.27, pp. 267–298. A discussion of criticisms by al-Battānī (ca. 900) of the ancient theory of trepidation, i.e., variation in the motion of equinoctial points on the equator. (JPH) #25.1.155

Raghavan, Srinivasacharyal. The Cakravāla Method, *Current Science* **71** (1996), 490–493. The method of the title, also known as the chakravala or cyclic method, was begun by Brahmagupta in 628 AD in an effort to solve what in the West is commonly known as Pell's equation. This method was completed by Bhaskara in 1150, and so even though it was rediscovered by Euler and Lagrange, an Indian formation and solution of the equation is asserted. See the review by P. Rajagopal in *Mathematical Reviews* **97h**:01007. (JA) #25.1.156

Rajagopal, Pinayur. Chinese Mathematics and the West, in Ruth Hayhoe and Julia Pan M. E. Sharpe (eds.), *East–West Dialogue in Knowledge and Higher Education* (New York: Hunan Univ., 1996), pp. 26–42. After discussing the abysmal lack of recognition of non-Western contributions in Western texts until 20 years ago, the author considers parallel developments in China and India, though ''China appears to have combined the ancient and the modern much better.'' (DEZ) #25.1.157

Rajagopal, Pinayur. *See also* #25.1.156 and #25.1.174.

Ramati, Ayval. Harmony at a Distance, *Isis* **87** (1996), 430–452. The author examines ways in which Gottfried Wilhelm Leibniz interpreted his own experiences in social environments, and then draws conclusions about Leibniz's understanding of social exchange within scientific academies. (DEZ) #25.1.158

Reich, Karin. Frankreich und Gauß, Gauß und Frankreich: Ein Beitrag zu den deutsch–französischen Wissenschaftsbeziehungen in den ersten Jahrzehnten des 19. Jahrhunderts [France and Gauss, Gauss and France: A Contribution to German–French Scientific Relations in the First Decades of the 19th century], *Berichte zur Wissenschaftsgeschicte* **19** (1996), 19–34. An examination of Gauss's early contacts with French mathematical and astronomical sources and considers the reception of his work in France. Gauss grew more distant from French contacts in later years, which the author attributes to a generational shift in French and German mathematics. See the review by Craig G. Fraser in *Mathematical Reviews* **97f**:01019. (GSS) #25.1.159

Reitwiesner, George W. The First Operating System for the EDVAC, *IEEE Annals of the History of Computing* **19**(1) (1997), 55–59. The capabilities of the operating system designed for the EDVAC were modest compared to later standards, yet some of its features are recognizable in later operating systems. (LSG) #25.1.160

Rius, Mònica. La orientación de las mezquitas según el *Kitā dalā'il al-qibla* de al-Mattṟ̂ṯ (s. XII), in #24.4.27, pp. 781–830. Summary of a 12th-century Islamic theological work on finding the qibla (the direction of Mecca). Its author, Abū ᶜAlī al-Mattṟ̂ṯ, did not recommend mathematical methods. (JPH) #25.1.161

Robson, Eleanor. Building with Bricks and Mortar: Quantity Surveying in the Ur III and Old Babylonian Periods, in K. R. Veenhof (ed.), *Houses and Households in Ancient Mesopotamia*, Istanbul: Neder-

lands Historisch-Archaeologisch Instituut, 1996, pp. 181–190. Two mathematical texts, BM 96957 and YBC 9819, are important for closing the gap between the theory of the mathematical texts and the practice of quantity surveying. The BM text shows that more sophisticated methods were known for estimates of the number of bricks needed in a wall than has previously been appreciated. (JGF) #25.1.162

Rogalski, Marc. De Leibniz à Euler: Cartier, Dumont, Krivine, Titchmarsh et les autres ... La relation $1 + 1/3^2 + 1/5^2 + 1/7^2 + \cdots = 2(1 - 1/3 + 1/5 - 1/7 + \cdots)^2$, *Gazette des mathématiciens* **68** (1996), 47–61. Establishes the formula of the title formally by demonstrating that the difference between the expressions involving partial sums is the sum of two null sequences, without using the closed value of either infinite series. The author concludes with a philosophical discussion of the complexity of such formulae. (EAM) #25.1.163

Rojas, Raúl. Konrad Zuse's Legacy: The Architecture of the Z1 and Z3, *IEEE Annals of the History of Computing* **19**(2) (1997), 5–16. Detailed account of the Z1 and Z3 computers designed by Zuse between 1936 and 1941. The Z1 used purely mechanical components, while the Z3 used electromechanical relays. The computers had a common logical structure and their programming model was identical. (LSG) #25.1.164

Rosinska, Grazyna. A Chapter in the History of the Renaissance in Mathematics: Negative Numbers and the Formulation of the Law of Signs (Ferrara, Italy, ca. 1450), *Kwartalnik Historii Nauki i Techniki* **40** (1995), 3–20. The author focuses on *De arithmetica*, which formed the opening part of the *Flores almagesti* of Giovanni Bianchini, and discusses Bianchini's treatment of the "law of signs." She gives examples of Bianchini's operations on negative quantities and on surds. See the review by A. G. Molland in *Mathematical Reviews* **97d**:01011. (HEK) #25.1.165

Rozhanskaya, M. M. A. P. Yushkevich's Works on the History of Medieval Mathematics [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 12–36. A detailed survey of the works on the history of medieval mathematics, particularly Arabic mathematics, written by A. P. Yushkevich. (DEZ) #25.1.166

Rozhanskaya, M. M., and Luther, I. O. The Early Correspondence of A. P. Yushkevich and K. Vogel [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 37–54. The authors provide an introduction to, translation of, and notes on 13 letters written from 1955 to 1985 between the historians of mathematics, Adolf Yushkevich and Kurt Vogel. The topics include the peculiarities of Babylonian mathematics, the application of negative numbers in antiquity, the specific character of Arabic and Chinese mathematics, and the editing of medieval and classical mathematical works. (DEZ) #25.1.167

Rozov, H. Kh. The Program to Create a Biographical Database of Russian Specialists in Mathematics and Mechanics [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 192–194. A description of the status of a biographical data base on Russian mathematicians being constructed under the direction of S. S. Demidov and the author. (DEZ) #25.1.168

Russell, Bertrand. *The Principles of Mathematics*, London: Routledge, 1992, xlii + 534 pp., paperbound, £14.99. Apart from a new introduction by John Slater, this is a photographic reproduction of the second, 1937, edition (first edition 1903). The earliest draft versions were radically different from the one published and for this reason were made available in N. Griffin and A. C. Lewis, eds., *Philosophical Papers, 1896–1899* (*The Collected Papers of Bertrand Russell, Vol. 2*, London: Unwin Hyman, 1990). (ACL) #25.1.169

Saliba, George. Arabic Science and the Greek Legacy, in #24.4.27, pp. 19–37. The author discusses translations from Greek into Arabic and the development of Greek planetary theory in Islamic civilization. (JPH) #25.1.170

Samelson, Hans. In Defense of Euler, *L'Enseignement mathématique* **42** (1996), 377–382. The author shows how two mistakes in Euler's proof of the formula $v - e + f = 2$ can be modified to include the required convexity argument. (DWB) #25.1.171

Samsó-Moya, Julio. ''al-Bīrūnī'' in al-Andalus, in #24.4.27, pp. 583–612. This paper focuses on the relations between the work of two Eastern Islamic mathematicians, al-Bīrūnī (973–1048) and Abū Jafar al-Khāzin (ca. 950), with the work of two Spanish Islamic mathematicians, Ibn Muᶜādh (died 1093) and Ibn al-Samḥ (died 1035). (JPH) #25.1.172

Sarma, Sreeramula Rajeswara. The Ṣafīḥa Zarqāliyya in India, in #24.4.27, pp. 719–735. The author describes a magnificent astrolabe, made in India in 1680–1681 and now preserved in Jaipur, that is based on the projection methods of the Islamic Spanish astronomer Ibn al-Zarqālluh (ca. 1075). (JPH) #25.1.173

Sarma, V. V. S. A Survey of Indian Logic from the Point of View of Computer Science, *Sādhanā* **19** (1994), 971–983. A survey of ancient, medieval (up to A.D. 600), and modern (post A.D. 600) Indian logic. The connections to computer science are sketchy. See the review by P. Rajagopal in *Mathematical Reviews* **97f**:01008. (GSS) #25.1.174

Scholz, Erhard. Hermann Weyl's ''Purely Infinitesimal Geometry,'' in S. D. Chatterji, ed., *Proceedings of the International Congress of Mathematicians* (*Zurich, 1994*) *Vol. 2*, Basel: Birkäuser, 1995, pp. 1592–1603. Weyl's views on the continuum are described and his infinitesimal geometry is seen as a contribution to a strategy to develop mathematical theories that symbolically explore the continuum. See the review by Detlef Laugwitz in *Mathematical Reviews* **97f**:01026. (GSS) #25.1.175

Schubring, Gert. Differences in the Involvement of Mathematicians in the Political Life in France and Germany, *Bollettino di storia delle scienze matematiche* **15** (1995), 61–83. A study of the active political involvement of French mathematicians during the French Revolution and the Napoleonic era. By contrast, the only German mathematicians at that time who became involved with contemporary political questions were Johann Georg Trailles (1763–1822) and Mathias Metternich (1747–1825). There is an interesting bibliography. See the review by Pierre Crépel in *Mathematical Reviews* **97d**:01044. (HEK) #25.1.176

Schubring, Gert. *La réforme de l'enseignement des mathématiques en Allemagne dans les années 1900–1914 et son rôle dynamique dans le mouvement international de réforme*, in Bruno Belhoste, Helène Gispert, and Nicole Hulin, eds., *Les sciences au lycée: Un siècle de réformes des mathématiques et de la physique en France et à l'étranger*, Paris: Librairie Vuibert, 1996, pp. 237–248. The reform of instruction in mathematics in Germany from 1900 to 1914 and its role in the international reform movement. (RC) #25.1.177

Schumacher, Georg. Über die Entwicklung der komplexen Analysis in Deutschland vom Ausgang des 19.Jahrhunderts bis zum Anfang der siebziger Jahre, *Jahresbericht der deutschen Mathematiker-Vereinigung* **98** (1996), 41–133. An overview of the history of complex analysis in Germany from the end of the 19th century to the 1970s, emphasizing the school of analytic geometry. The author includes a bibliography of 176 entries. (EAM) #25.1.178

Scriba, Christoph J. *See* #25.1.69.

Seldin, Jonathan P. Two Remarks on Ancient Greek Geometry, in #25.1.192, pp. 26–30. The remarks are that our biological programming predisposes us to Euclidean geometry, and that we should seek a countable field which contains all magnitudes of interest in ancient Greek geometry. (TLB) #25.1.179

Seltman, Muriel, and Mizzi, Eddie. Thomas Harriot: Father of English Algebra? *The Mathematical Intelligencer* **19**(1) (1997), 46–49. The authors compare Harriot's posthumous *Artis analyticae praxis*, prepared for publication by Walter Warner in 1631, with extant manuscripts by Harriot and conlcude that Harriot deserves greater recognition for his contributions to algebra. (TLB) #25.1.180

Semeniuk-Polkowska, Maria. *See* #25.1.26.

Sesiano, Jacques. Herstellungsverfahren magischer Quadrate aus islamischer Zeit. III [Methods of Construction of Magic Squares. III], *Sudhoffs Archiv* **79** (1995), 193–226. Studies the construction of magic squares in the treatise *On Magic Squares* by al-Kharaqi. The carefully edited Arabic text is

given at the end of the paper. See the review by Yvonne Dold-Samplonius in *Mathematical Reviews* **97f**:01007. (GSS) #25.1.181

Sesiano, Jacques. L'Abrégé enseignant la disposition harmonieuse des nombres, Un manuscrit arabe anonyme sur la construction des carrés magiques, in #24.4.27, pp. 103–157. Edition and French translation of an anonymous 11th-century(?) Arabic treatise (ms. Aya Sofya 4801, 114–121) on magic squares. (JPH) #25.1.182

Shapiro, Helene. Notes from Math 223: Olga Taussky Todd's Matrix Theory Course, 1976–1977, *The Mathematical Intelligencer* **19**(1) (1997), 21–27. A personal account of topics which made the greatest impression on a student in the course: simultaneous triangularization, higher-order commutators, and results on multiplicative commutators of unitary and cramped matrices. (TLB) #25.1.183

Shapiro, Stuart. Splitting the Difference: The Historical Necessity of Synthesis in Software Engineering, *IEEE Annals of the History of Computing* **19**(1) (1997), 20–54. Follows the major themes in the development of software engineering and provides an overview of it. Deals with the compromises needed in coping with generality and specificity, heuristics and formalism, procedures and data, sequence and cycle. (LSG) #25.1.184

Simon, Petr. *See* #25.1.19.

Sinaceur, Hourya. *See* #25.1.131.

Singh, S. L. *See* #24.4.139.

Siu, M. K. The Story of Calculus. I, *Mathematical Medley* **23** (1996), 28–32. Discusses the origins of calculus in the works of Archimedes and some Chinese mathematicians. Volume computations are presented which suggest calculus techniques in use by Chinese mathematicians starting in the second century A.D. See the review by Doru Stefanescu in *Mathematical Reviews* **97f**:01004. (GSS) #25.1.185

Smirnova, G. S. *See* #25.1.27.

Smith, A. Mark. *Ptolemy's Theory of Visual Perception*, Philadelphia: American Philosophical Society, 1996, xii + 300 pp., $25. An English translation of Ptolemy's *Optics* with introduction and commentary. See the review by Eberhard Knobloch in *Mathematical Reviews* **97g**:01005. (EAM) #25.1.186

Smith, Jonathan; Berkove, Lawrence, I; and Baker, Gerald A. A Grammar of Dissent: *Flatland*, Newman, and the Theology of Probability, *Victorian Studies* **39** (1996), 129–150. *Flatland* is a cautionary tale about the dangers of the imagination wrongly employed; not so much an unproblematic celebration of analogical reasoning as an attack on J. H. Newman's theology and on probabilistic reasoning. (JGF) #25.1.187

Smithies, F. *See* #25.1.30.

Ssembatya, Vincent, and Vince, Andrew. Mathematics in Uganda, *The Mathematical Intelligencer* **19**(3) (1997), 27–32. Discusses the status of mathematics at Makerre University and its predecessors from colonial times to the present. (TLB) #25.1.188

Stefanescu, Doru. *See* #25.1.185Siu.

Struik, D. J. *See* #25.1.14.

Sullivan, Bob. Perils and Pleasures of the Internet, *International Study Group on the Relation Between History and Pedagogy of Mathematics Newsletter* **40** (1997), 7–9. Report of a panel discussion at a meeting held at Braga in July 1996 on using the Internet for retrieving information on the history of mathematics. (DEZ) #25.1.189

Taton, René. Les relations entre R. J. Boscovich et Alexis-Claude Clairaut (1759–1764), *Revue d'histoire des sciences* **49** (1996), 415–458. Although representing an antagonistic trend in the critical analysis

and development of Newton's work, Clairaut was the foremost scientist whom Boscovich came to know during his stay in Paris, 1759–1760. Their relationship continued through letters until 1764. (JGF) #25.1.190

Tattersall, James J. Davenant's Problem, in #25.1.192, pp. 136–139. Describes the problem and solution (solving a pair of simultaneous polynomial equations) proposed by a 17th-century English cleric and mathematical amateur. (TLB) #25.1.191

Tattersall, James J. (ed.). *Proceedings of the Canadian Society for the History and Philosophy of Mathematics, Vol. 9*, St. Catherines, Ontario: Brock University, 1996, softbound, 139 pp. This volume contains most of the papers delivered at the 22nd annual meeting of the CSHPM held May 30–June 1, 1996. There was a special session on ancient mathematics chaired by J. L. Berggren. Articles based on these talks and the contributed papers are abstracted separately. (TLB) #25.1.192

Thiele, Rüdiger. On Some Contributions to Field Theory in the Calculus of Variations from Beltrami to Carathéodory, *Historia Mathematica* **24** (1997), 281–300. This paper traces the opposing approaches taken by Eugenio Beltrami and David Hilbert to field theory in which Adolf Kneser's notion of transversality is a key tool. The paper ends with an account of Constantin Carathéodory's approach to field theory. (DEZ) #25.1.193

Thorensen, R. *See* #25.1.101.

Tolsted, Elmer. Reminiscences of Professor Ya. D. Tamarkin [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 108–118. J. D. Tamarkin's last doctoral student recounts the period 1941–1945 when his advisor and he played sonatas for cello and piano together. An introduction and commentary by N. S. Ermolaeva accompany Tolsted's account. (DEZ) #25.1.194

Van Brummelen, Glen. Use and Abuse of Statistics in Ancient Astronomy, in #25.1.192, pp. 31–37. Points out the weakness of R. Newton's use of statistics to try to discredit Ptolemy and summarizes ideas of B. van Dalen and G. Van Brummelen to use statistics for more modest goals. (TLB) #25.1.195

Van Dalen, Benno. al-Khwārizmī's Astronomical Tables Revisited: Analysis of the Equation of Time, in #24.4.27, pp. 195–252. This paper includes a survey of previous research on all astronomical tables of al-Khwārizmī, and an analysis of the way in which he computed a table for the equation of time. (JPH) #25.1.196

Vermij, Rienk, and Atzema, Eisso. *Specilla circularia*: An Unknown Work by Johannes Hudde, *Studia leibnitiana* **27** (1995), 104–121. A study of Hudde's "*Specilla circularia etc.*" ["*Circular lenses, etc.*"] using two manuscript versions. Hudde's treatment, meant to be a complement to Descartes's work on the unison of rays after refraction, must be read against the backdrop of Descartes's theory of ovals and the dominance of paraxial optics. See the review by Eberhard Knobloch in *Mathematical Reviews* **97f**:01012. (GSS) #25.1.197

Viladrich, Mercé. The *Mumtaḥan* Tradition in al-Andalus: Analysis of the Data from the *Calendar of Cordova* Related to the Entrance of the Sun in the Zodiacal Signs, in #24.4.27, pp. 253–265. The author shows by a mathematical analysis that some of the data in the *Calendar of Cordoba* (ca. 960 A.D.) were computed a century earlier in Syria or Iraq. (JPH) #25.1.198

Vince, Andrew. *See* #25.1.188.

Volkov, Alexeï. Zhao Youqin and His Calculation of π, *Historia Mathematica* **24** (1997), 301–331. A discussion of the method used by the multitalented Chinese scholar, Zhao Youqin (1271–?), to obtain 355/113 as an approximation to π. A biographical sketch of Zhao is included. The appendix contains a translation of the relevant part of Zhao's treatise. (DEZ) #25.1.199

Voolich, Erica. Report on the HPM Meeting in Minneapolis, Minnesota, April 1997, *International Study Group on the Relations Between History and Pedagogy of Mathematics Newsletter* **41** (1997), 4–5.

Report of a meeting held to discuss the document *The Role of the History of Mathematics in the Teaching and Learning of Mathematics*. (DEZ) #25.1.200

Vuillemin, Jules. La section de la ligne dans la République (VI 509d 26–28), in *Mathématiques et philosophie de l'antiquité à l'âge classique*, Paris: CNRS, 1991, pp. 1–20. The author considers Plato's famous image of a line divided into four parts to represent different forms of knowledge and opinion. See the review by A. G. Molland in *Mathematical Reviews* **97d**:01004. (HEK) #25.1.201

Walters, Alice N. Conversation Pieces: Science and Politeness in Eighteenth-Century England, *History of Science* **35** (1997), 121–154. *Politeness* arose as a social marker in English society at around the time that natural philosophy was making itself felt. The social legitimization of science was effected using the *polite* agenda, as may be seen in texts both translated (Fontenelle, Voltaire, Algarotti) and home-grown (Harris, Martin, Ferguson, Bonnycastle). (JGF) #25.1.202

Wang, Bin. The Principle of the Central Difference Formula in Ancient Chinese Calendars [in Chinese], *Journal of Northwest University* **25** (1995), 283–288. A discussion of a second-order interpolation method found in the Futian calendar (A.D. 780–783). A reconstruction of the method is proposed and a discussion of the solar equation of the center follows. See the review by Catherine Jami in *Mathematical Reviews* **97f**:01005. (GSS) #25.1.203

Weiss, Eric A. Eloge: Cuthbert Corwin Hurd (1911–1996), *IEEE Annals of the History of Computing* **19**(1) (1997), 65–73. An educator, historian, mathematician, and IBM executive, Hurd made many important contributions to the development of computing. He was involved with the IBM-701, the IBM-650, and FORTRAN. (LSG) #25.1.204

Westfall, Richard. Technical Newton, *Isis* **87** (1996), 701–706. An essay review by the late author, a Newton specialist, on five books written in 1995 about Isaac Newton: Michel Blay, *Les ''Principia'' de Newton*, J. Bruce Brackenridge, *The Key to Newton's Dynamics: The Kepler Problem and the Principia*, Subrahmanyan Chadrasekhar, *Newton's Principia for the Common Reader*, François de Gandt, *Force and Geometry in Newton's Principia*, and Dana Densmore, *Newton's Principia: The Central Argument*. The reviewer writes that all of ''the authors have come away from immersion in the *Principia* not inclined to criticize, but filled with admiration.'' (DEZ) #25.1.205

Wilkes, Maurice V. Arithmetic on the EDSAC, *IEEE Annals of the History of Computing* **19**(1) (1997), 13–15. The Electronic Delay Storage Automatic Calculator was a serial binary computer with an ultrasonic delay memory. The discussion shows how fixed-point arithmetic was handled, providing insight into design decisions of such features as word length, the double length accumulator, and problem scaling. (LSG) #25.1.206

Wilson, Robin. Stamp Corner: Abel, *The Mathematical Intelligencer* **19**(1) (1997), 80. Displays two Norwegian stamps and a Norwegian banknote commemorating Niels Henrik Abel, and briefly describes his work. (TLB) #25.1.207

Wise, M. Norton. *The Values of Precision*, Princeton: Princeton Univ. Press, 1995, viii + 372 pp., $49.50, £35. Thirteen essays from a Workshop in the History of Science. Reviewer Lorraine Daston writes in *Isis* **87** (1996), 517–519, that the essays address ''the questions of when, why, and how it began to make sense to scientists, bureaucrats, merchants, and manufacturers to strive for ever more decimal places, ever more exact and exacting measurements.'' (DEZ) #25.1.208

Yowell, E. C. *See* #25.1.101.

Yushkevich, A. P. *See* #25.1.111.

Yushkevich, Elena. Reminiscences of Grandfather Dolya [in Russian], *Istoriko-Matematicheskie Issledovaniya* **36** (1996), 9–12. Memories of visits made to the apartment and dacha of the historian of mathematics, Adolf Pavlovich Yushkevich, by the granddaughter of his sister. (DEZ) #25.1.209